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B. T. GALLOWAY, Chief of Bureau.

COMPARATIVE TESTS OF SUGAR-BEET VARIETIES.

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COMPARATIVE TESTS OF SUGAR-BEET VARIETIES.[a]

INTRODUCTION.

The tests and trials recorded in this circular have been carried on for a term of five years in cooperation with the New York Agricultural Experiment Station, Geneva, N. Y., the Experiment Station of the Michigan State Agricultural College, East Lansing, Mich., the Agricultural Experiment Station, Logan, Utah, and private individuals under the supervision of the Department of Agriculture at Holland, Mich., and Fairfield, Wash. The Agricultural Experiment Station at Fort Collins, Colo., and the Eastern Oregon Agricultural Experiment Station at Union, Oreg., also cooperated with the Department for three years. Many of the various beet-sugar factories throughout the United States have assisted materially in the work.

IMPORTANCE OF COMPARATIVE TESTS OF SUGAR-BEET VARIETIES.

Although the importance of quality of seed is quite generally appreciated, it is often difficult, if not impossible, for one not personally acquainted with the growers to judge wisely as to the true merits of seed before purchasing. Reports regarding tests of seed often convey a false or misleading impression. This arises from a number of causes, a very common one being that the peculiar climatic and soil conditions prevailing during the year the tests were conducted were especially advantageous to certain varieties and injurious to others. This fact might not be apparent during a single year's work, although it may have been a most important factor in determining the relative results for a series of years. Influences of local climate and soil should not be ignored; in fact, they can be used to great advantage, although to comment wisely upon the quality of varieties it is necessary to eliminate as far as possible any temporary adverse conditions which a given variety may have encountered. The greater the number of comparative tests made under various soil and climatic conditions the more the objectionable elements of chance are eliminated, and just so much more by continuing the tests through a number of years. Permanent soil and climatic conditions should be considered as bearing certain relations to the crop, and the effect of such influences should be recorded. A variety which has been developed under certain local conditions would probably be much better suited for use in sections having similar soil and climatic conditions than in sections widely different in this respect from that where the seed was produced. These experiments were conducted for a term of five years in localities representative of the various beet-growing sections of the United States.

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[a] For a number of years there has been considerable discussion among sugar-beet growers and others interested in the beet-sugar industry regarding the comparative values of the different varieties of sugar-beet seed. Five years ago this Bureau undertook some carefully planned experiments for the purpose of determining the relative merits of the leading varieties used by two or more factories in this country. These tests have been carried on under different soil and climatic conditions during the period that the work has been in progress, and the results of these tests are embodied in this paper, being set forth in tables as well as by means of charts. These results will undoubtedly be of interest and value to the beet-sugar companies, as well as to the sugar-beet growers.—B. T. Galloway, *Chief of Bureau.*

METHODS OF CONDUCTING THE TESTS.

The tests at the various stations were uniformly conducted with the idea of determining the ability of each strain or variety to produce a paying crop under varying local conditions.

The plots were made as large as feasible, in most cases being one-fourth to one-half of an acre, although under irrigation at one station they were but one-twentieth of an acre. All plots were planted and treated as a farm crop, no care being taken to produce extra yield or high sugar content that could not be secured in a general crop.

Fields uniform in soil and physical condition were chosen for the tests, and the tables are made up of the actual results secured, except that in a few instances, where peculiar conditions of soil or drainage appeared or varieties were washed out by rain or injured by local conditions, the results have been eliminated, no attempt having been made to correct the figures on account of such exceptional local conditions. It is possible that if these eliminations had not been made it would have changed the relative positions of the varieties. As a suggestion to those who care to study the matter further, the mean position of the varieties in question at a particular station during the remaining years' experiments can be used for the computation of a possible result.

At each station the planting of all plots was done on the same day and in the same manner.

The care, including the blocking, thinning, cultivating, and general attention, of each plot and the harvesting, topping, and weighing of the roots from each plot were practically the same.

The testing at each station was done under similar conditions and in the same manner, the samples used being uniformly taken of all roots as grown in the row, a like number being taken of each sort.

The standard of measurement used has been the gross amount of sugar produced to the acre, as represented by the yield of roots multiplied by the sugar content (sugar in beet). Separate tables showing the comparative yields of roots and of sugar have not been included, although the figures are given. The purity of the roots was not taken into consideration.

METHODS OF SECURING THE SEED USED.

The Department of Agriculture receives numerous requests from sugar-beet growers to test seed grown by themselves and has been offered large quantities for this purpose. In the preliminary work of these experiments it was found that such samples were often much superior to the samples of the same variety secured in the open market, and it was therefore decided to purchase all seed in commercial lots in the original sacks as sent out by the seed growers. The seed tested, therefore, was purchased from factories using it for commercial purposes and not from the growers themselves, the only exceptions throughout the entire series of experiments being that obtained from J. B. Agnew, C. C. Morse & Co., and E. H. Morrison, which was purchased in 1,000-pound lots direct from these growers. The varieties determined upon were all those which to the Department's knowledge were used by two or more beet-sugar factories in the United States.

VARIETIES OF SEED USED AND GROWERS PRODUCING THEM.

	Name or abbreviated designation used in tables and charts.
Klein Wanzleben Grown by E. H. Morrison, Fairfield, Wash.	Morrison.
Klein Wanzleben Grown by Klein Wanzleben Sugar Factory, Klein Wanzleben, Germany.	Original.
Klein Wanzleben Grown by Otto Breustedt, Schladen-a-Harz, Germany.	Breustedt.
Klein Wanzleben Grown by Henry Mette, Quedlinburg, Germany.	Mette.
Schreiber Specialitaet Grown by G. Schreiber & Son, Nordhausen, Germany.	Schreiber.
Klein Wanzleben Grown by C. Braune, Bernburg, Germany.	Braune.
Klein Wanzleben Grown by F. Heine, Hadmersleben, Germany.	Heine.
Klein Wanzleben Grown by Utah Sugar Company, Lehi, Utah.	Utah.

	Name or abbreviated designation used in tables and charts.
Klein Wanzleben Grown by Otto Hoerning, Eisleben, Germany.	Hoerning.
Jaensch Victrix Grown by Gustav Jaensch & Co., Aschersleben, Germany.	Jaensch.
Klein Wanzleben Grown by Dippe Brothers, Quedlinburg, Germany.	Dippe.
Klein Wanzleben Grown by Kuhn & Co., Naarden, Holland.	Kuhn.
Knauers' Mangold Grown by M. Knauers & Son, Grobers, Germany.	Knauers.
Klein Wanzleben Grown by J. B. Agnew, Agnew, Cal.	Agnew.
Klein Wanzleben Grown by American Beet Sugar Company, Grand Island, Nebr.	Nebraska.
Klein Wanzleben Grown by Idaho Sugar Company, Sugar City, Idaho.	Idaho.
Old Type Grown by Klein Wanzleben Sugar Factory, Klein Wanzleben, Germany.	Old Type.
Pioneer Grown by Klein Wanzleben Sugar Factory, Klein Wanzleben, Germany.	Pioneer.
Klein Wanzleben Grown by C. C. Morse & Co., Gilroy, Cal.	Morse.
Klein Wanzleben Grown by Adolph Strandes, Anhalt, Germany.	Strandes.
Zuckerreichet Grown by Wohanka & Co., Prague, Bohemia, Austria.	Zuckerreichet.
Klein Wanzleben Grown by Wohanka & Co., Prague, Bohemia, Austria.	Wohanka.
Aderstedt (peeled and disinfected) Grown by Zuckeschwerdt & Beuchel, Madgeburg, Germany.	Aderstedt.
Behren Klein Wanzleben Grown by Zuckeschwerdt & Beuchel, Madgeburg, Germany.	Behren.

RESULTS OF THE TESTS.

It was found that if alphabetically stated there would be such a wide variation in the diagrams (figs. 1 and 2) that their object, the graphic presentation of facts, would be lost; therefore, the order shown in Table I, giving the yield of sugar per acre at all stations for the entire period, was used. The variety showing the highest sugar content for the entire period was therefore given first place throughout the entire report; the variety showing the next highest sugar yield was given the second place, etc. Varieties not appearing in Table I follow alphabetically according to growers.

The Department of Agriculture does not wish to be understood as stating that the actual value of the varieties is in the order given in this report, as there are many conditions and reasons why a variety farther down on the list may be superior for use in certain sections and under certain conditions. The figures presented in the tables are simply the results of the tests, which were made under as uniform conditions as could be secured.

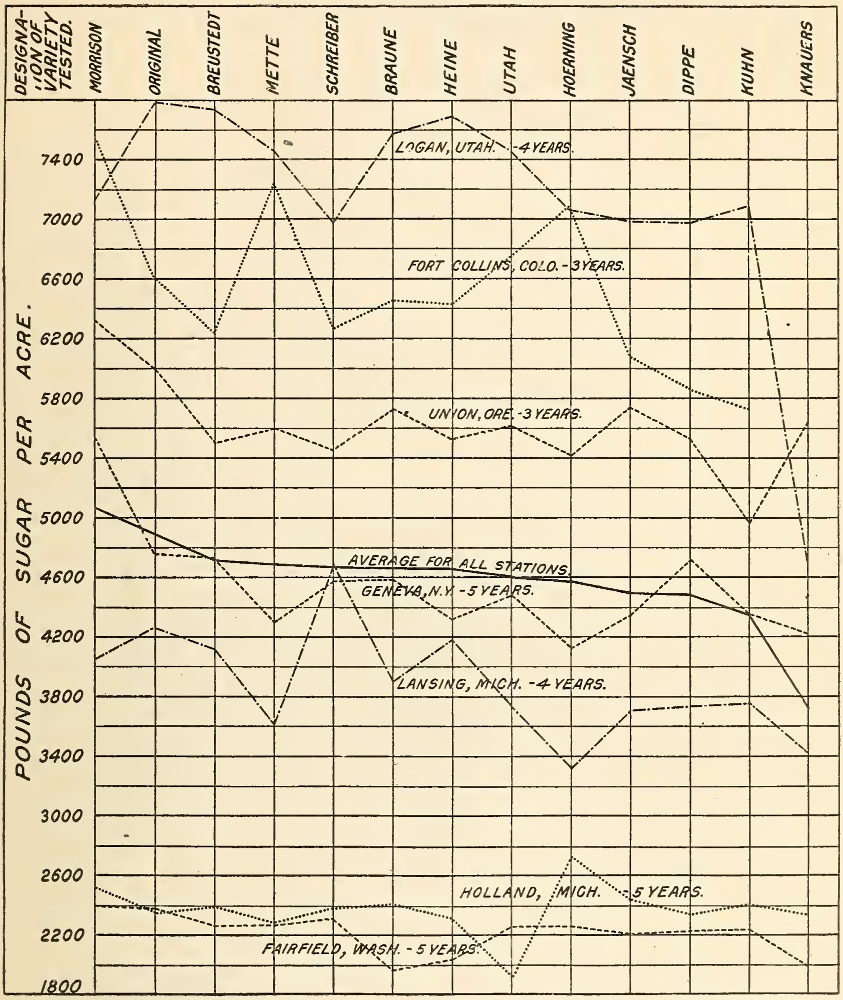

FIG. 1.—Diagram showing the standing of sugar-beet varieties tested, at each station and at all stations.

It will be noted that several varieties which were tested from but one to three years have not been included in Tables I, II, III, and IV or in the diagrams, but they are included in all other tables, every variety though tested but a single year being shown in its comparative position among all varieties tested that year not only at each station but at all stations. It was found that should these varieties be included in all the tables their position would sometimes rank among the best, although during those years when they were tested they were well down on the list. This arose from the fact that they were only tested during the plentiful years, as shown by the following facts:

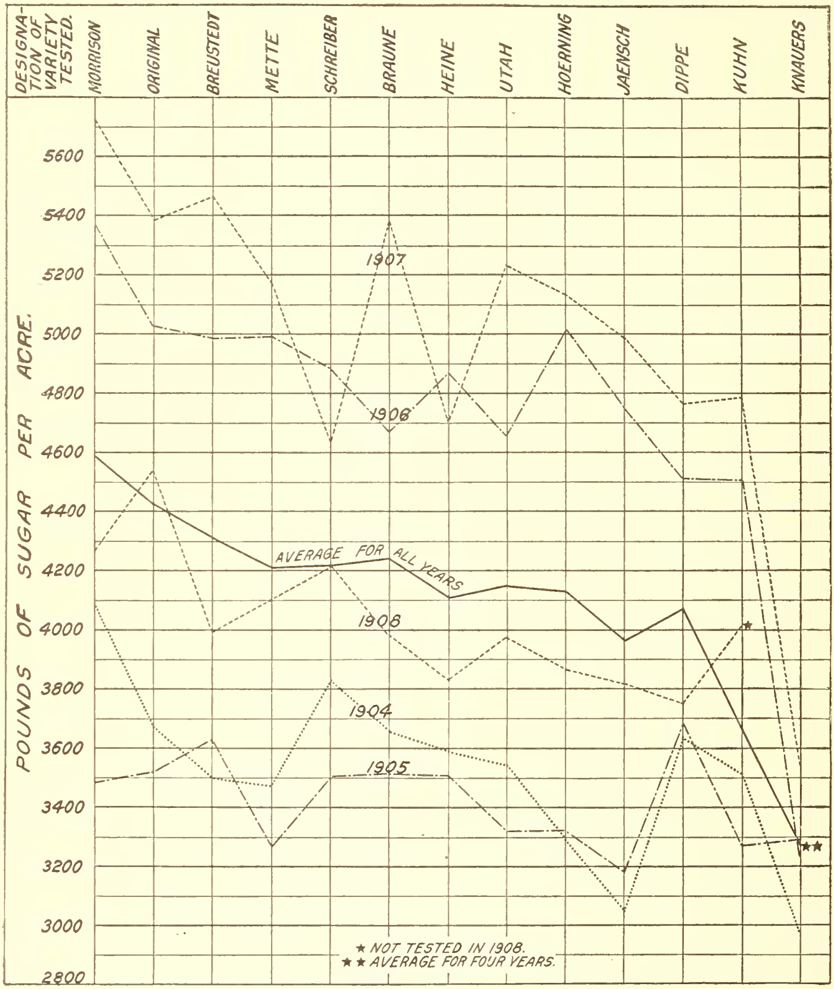

FIG. 2.—Diagram showing the standing of sugar-beet varieties tested, for each year and for all years.

The greatest amount of sugar obtained in 1904 and 1905 was 4,094 pounds, and the average 3,477 pounds, while during the two good years of 1906 and 1907 the highest sugar obtained was 5,729 pounds, and the average was 4,947 pounds; thus, the highest sugar recorded during 1904 and 1905 was not only 1,635 pounds below the highest obtained in 1906 and 1907, but 853 pounds below the average obtained during these two years.

The results obtained in this series of tests have been recorded and tabulated as follows:

(1) The relative performance of varieties by stations for the entire period. Table I and figure 1.

(2) The relative performance of varieties by years for the entire period. Table I and figure 2.

(3) The relative standing of varieties by years and stations for the entire period. Tables I and XI.

(4) The relative performance of varieties for the entire period at each station. Table II and figure 1.

(5) The relative performance of varieties at all stations for each year. Table III and figure 2.

(6) The yearly performance of varieties at each station. Tables IV to X, inclusive.

(7) The yearly standing of varieties at each station. Table XII.

A careful study of the data will show that each table brings out certain facts not shown in the others.

Table I.—*Relative performance of sugar-beet varieties for the entire five-year period covered by the tests.*

Designation of variety tested.	Arranged by stations.				Arranged by years.			
	Roots.	Sugar.		Standing of variety tested.	Roots.	Sugar.		Standing of variety tested.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	15.46	16.60	5,069	1	14.25	16.34	4,590	1
Original	14.25	17.36	4,881	2	13.15	17.00	4,429	2
Breustedt	14.39	16.54	4,711	3	13.46	16.16	4,315	3
Mette	14.49	16.28	4,679	4	13.30	15.96	4,202	6
Schreiber	14.10	16.83	4,665	5	12.79	16.77	4,214	5
Braune	14.53	16.22	4,657	6	13.48	15.90	4,243	4
Heine	13.95	16.85	4,642	7	12.59	16.59	4,101	9
Utah	13.95	16.67	4,603	8	12.72	16.49	4,147	7
Hoerning	14.53	16.08	4,571	9	13.35	15.79	4,128	8
Jaensch	13.85	16.38	4,498	10	12.42	16.13	3,961	12
Dippe	13.57	16.80	4,490	11	12.52	16.56	4,068	10
Kuhn	13.01	16.99	4,364	12	12.16	16.66	4,018	11
Knauers	12.40	15.05	3,721	13	11.25	14.64	3,254	13

Table II.—*Standing of sugar-beet varieties tested at each and all stations.*

Designation of variety tested.	Colorado, Fort Collins (tested three years).				Michigan, East Lansing (tested four years).			
	Roots.	Sugar.		Standing at station.	Roots.	Sugar.		Standing at station.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	22.13	16.90	7,532	1	12.16	17.02	4,044	5
Original	19.33	17.10	6,616	5	12.19	18.14	4,261	2
Breustedt	18.20	17.12	6,248	9	12.24	17.11	4,121	4
Mette	21.03	17.10	7,224	2	11.10	16.50	3,614	12
Schreiber	19.27	16.23	6,278	8	13.26	17.98	4,682	1
Braune	19.53	16.52	6,449	6	12.08	16.62	3,902	6
Heine	18.70	17.20	6,433	7	12.18	17.51	4,191	3
Utah	19.90	16.78	6,744	4	11.00	17.33	3,737	9
Hoerning	22.17	15.90	7,085	3	10.08	17.18	3,328	10
Jaensch	18.40	16.50	6,072	10	11.35	17.33	3,717	11
Dippe	16.40	17.90	5,871	11	11.42	16.93	3,767	7
Kuhn	16.43	17.42	5,724	12	10.86	17.34	3.754	8
Knauers					11.41	15.00	3,452	13

TABLE II.—*Standing of sugar-beet varieties tested at each and all stations*—Continued.

Designation of variety tested.	Michigan, Holland (tested five years).				New York, Geneva (tested five years).			
	Roots.	Sugar.		Standing at station.	Roots.	Sugar.		Standing at station.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	8.78	14.36	2,517	2	17.97	15.36	5,525	1
Original	7.92	14.98	2,371	8	15.17	15.68	4,763	2
Breustedt	8.70	14.06	2,394	6	15.95	14.71	4,723	3
Mette	8.45	13.62	2,286	12	14.40	14.93	4,295	11
Schreiber	8.11	14.78	2,393	7	15.06	15.21	4,573	6
Braune	8.43	14.48	2,407	5	15.36	14.97	4,584	5
Heine	8.06	14.40	2,311	11	14.00	15.50	4,312	10
Utah	6.83	14.40	1,930	13	14.50	15.54	4,487	7
Hoerning	9.57	14.36	2,736	1	14.32	14.47	4,124	13
Jaensch	8.53	14.30	2,436	3	14.76	14.70	4,339	9
Dippe	7.78	15.02	2,345	9	15.23	15.51	4,716	4
Kuhn	8.21	14.58	2,410	4	14.38	15.13	4,354	8
Knauers	9.17	12.58	2,336	10	15.50	13.41	4,209	12

Designation of variety tested.	Oregon, Union (tested three years).				Utah, Logan (tested four years).			
	Roots.	Sugar.		Standing at station.	Roots.	Sugar.		Standing at station.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	18.04	17.20	6,314	1	23.08	15.58	7,138	2
Original	16.55	18.46	5,999	2	22.65	17.33	7,780	1
Breustedt	15.97	17.54	5,504	10	23.73	16.22	7,735	3
Mette	16.60	17.04	5,608	[a] 6	23.94	15.55	7,460	7
Schreiber	15.77	17.20	5,447	11	21.55	16.24	6,972	12
Braune	16.95	16.48	5,721	4	24.06	15.85	7,567	5
Heine	16.07	17.04	5,525	9	23.56	16.42	7,690	4
Utah	16.72	17.01	5,608	[a] 6	22.79	16.50	7,466	6
Hoerning	16.46	16.39	5,413	12	23.19	15.30	7,063	9
Jaensch	16.89	16.49	5,735	3	21.15	16.45	6,990	10
Dippe	16.02	16.86	5,530	8	22.55	15.63	6,981	11
Kuhn	14.07	18.37	4,975	13	21.44	16.60	7,097	8
Knauers	18.10	15.58	5,640	5	14.61	16.08	4,699	13

Designation of variety tested.	Washington, Fairfield (tested five years).				Average of all tests.			
	Roots.	Sugar.		Standing at station.	Roots.	Sugar.		Average standing at station.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	6.06	19.81	2,412	1	15.46	16.60	5,069	1
Original	5.92	19.86	2,378	2	14.25	17.36	4,881	2
Breustedt	5.93	18.99	2,251	5	14.39	16.54	4,711	3
Mette	5.90	19.22	2,268	4	14.49	16.28	4,679	4
Schreiber	5.71	20.14	2,308	3	14.10	16.83	4,665	5
Braune	5.30	18.59	1,966	13	14.53	16.22	4,657	6
Heine	5.11	19.86	2,035	12	13.95	16.85	4,642	7
Utah	5.88	19.12	2,249	6	13.95	16.67	4,603	8
Hoerning	5.92	18.98	2,248	7	14.53	16.08	4,571	9
Jaensch	5.84	18.88	2,200	10	13.85	16.38	4,498	10
Dippe	5.58	19.78	2,223	9	13.57	16.80	4,490	11
Kuhn	5.66	19.49	2,232	8	13.01	16.99	4,364	12
Knauers	5.63	17.65	1,987	11	12.40	15.05	3,721	13

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[a] The Mette and the Utah varieties have the same relative standing at Union, Oreg.

TABLE III.—*Standing of sugar-beet varieties tested at all stations for each and all years.*

Designation of variety tested.	1904.				1905.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	12.80	16.44	4,094	1	11.90	14.69	3,486	7
Original	11.01	16.94	3,672	3	11.52	15.01	3,530	3
Breustedt	11.31	16.13	3,503	9	12.32	14.34	3,626	2
Mette	11.48	15.70	3,479	10	11.39	14.46	3,267	12
Schreiber	11.60	16.93	3,826	2	10.98	16.06	3,503	6
Braune	11.87	15.73	3,661	4	12.16	14.03	3,507	4
Heine	10.86	16.87	3,590	6	12.02	14.85	3,504	5
Utah	10.44	17.16	3,547	7	11.17	14.72	3,325	9
Hoerning	10.92	15.58	3,295	11	11.88	13.92	3,323	10
Jaensch	9.88	15.85	3,058	12	10.79	14.70	3,183	13
Dippe	10.99	16.82	3,628	5	11.75	15.40	3,688	1
Kuhn	10.65	16.82	3,513	8	10.61	15.08	3,276	11
Knauers	10.11	15.05	2,977	13	12.58	13.11	3,352	8
Agnew	11.85	15.95	3,727	....	11.70	14.08	3,343	....
Nebraska	10.95	16.78	3,706	....	11.26	14.66	3,379	....
Morse	11.85	15.13	3,572	....	12.02	14.50	3,468	....
Aderstedt	10.83	15.60	3,294	....	12.42	14.66	3,683	....

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	16.16	16.69	5,378	1	16.81	17.10	5,729	1
Original	14.81	17.06	5,023	2	15.36	17.74	5,386	4
Breustedt	15.49	16.09	4,983	5	15.66	17.37	5,465	2
Mette	15.63	16.01	4,987	4	14.99	17.07	5,177	6
Schreiber	14.93	16.55	4,883	6	13.32	17.39	4,643	12
Braune	15.04	15.77	4,670	9	15.37	17.55	5,388	3
Heine	14.98	16.53	4,874	7	13.98	16.91	4,703	11
Utah	14.84	16.05	4,661	10	15.01	17.32	5,225	5
Hoerning	16.45	15.62	5,015	3	15.12	17.14	5,139	7
Jaensch	14.45	16.51	4,756	8	15.13	16.29	4,994	8
Dippe	14.01	16.46	4,510	11	14.15	17.16	4,767	10
Kuhn	13.91	16.37	4,504	12	13.40	17.77	4,790	9
Knauers	10.66	15.02	3,143	13	11.65	15.36	3,542	13
Idaho	13.92	16.48	4,538	....	15.36	17.15	5,169	....
Wohanka	14.60	15.95	4,597	....	13.87	16.57	4,555	....

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Average standing.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	13.57	16.80	4,265	2	14.25	16.34	4,590	1
Original	13.03	18.26	4,536	1	13.15	17.00	4,429	2
Breustedt	12.54	16.88	3,998	6	13.46	16.16	4,315	3
Mette	12.99	16.58	4,100	4	13.30	15.96	4,202	6
Schreiber	13.11	16.94	4,217	3	12.79	16.77	4,214	5
Braune	12.98	16.43	3,990	7	13.48	15.90	4,243	4
Heine	11.10	17.79	3,836	9	12.59	16.59	4,101	9
Utah	12.15	17.21	3,976	8	12.72	16.49	4,147	7
Hoerning	12.39	16.69	3,868	10	13.35	15.79	4,128	8
Jaensch	11.85	17.30	3,815	11	12.42	16.13	3,961	12
Dippe	11.69	16.97	3,749	12	12.52	16.56	4,068	10
Kuhn	12.24	17.26	4,005	5	12.16	16.66	4,018	11
Knauers	....	....	....	....	11.25	14.64	3,254	13
Aderstedt	11.80	17.28	3,888	....	....	....	....	....
Idaho	12.86	17.06	4,201	....	....	....	....	....
Behren	13.48	16.93	4,332	....	....	....	....	....
Old Type	12.59	17.72	4,244	....	....	....	....	....
Zuckerreichet	13.04	16.34	4,049	....	....	....	....	....
Pioneer	12.28	17.40	3,964	....	....	....	....	....
Strandes	11.84	16.71	3,697	....	....	....	....	....
Wohanka	13.16	17.31	4,275	....	....	....	....	....

TABLE IV.—*Standing of sugar-beet varieties tested at the Agricultural Experiment Station, Fort Collins, Colo., for each and all years.*

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	26.80	17.50	9,380	1	21.50	17.60	7,568	4
Original	18.70	18.10	6,769	6	20.40	17.60	7,181	[a] 7
Breustedt	20.90	16.80	7,022	5	17.60	19.90	7,005	9
Mette	23.50	17.10	8,037	3	21.90	18.20	7,972	2
Schreiber	19.60	16.20	6,350	10	20.40	17.60	7,181	[a] 7
Braune	21.50	15.40	6,622	7	19.50	18.50	7,215	6
Heine	18.70	17.20	6,433	8	......	......	......	......
Utah	......	......	......	......	22.10	18.30	8,089	1
Hoerning	26.70	15.70	8,384	2	22.70	17.20	7,809	3
Jaensch	18.40	16.50	6,072	11	......	......	......	......
Dippe	16.40	17.90	5,871	12	......	......	......	......
Kuhn	18.50	17.30	6,401	9	15.50	18.70	5,797	11
Idaho	......	......	......	......	21.40	17.30	7,404	5
Wohanka	21.00	17.10	7,182	4	19.00	16.30	6,194	10

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Number of years tested.	Roots.	Sugar.	
	Tons per acre.	*Per cent.*	*Pounds per acre.*			*Tons per acre.*	*Per cent.*	*Pounds per acre.*
Morrison	18.10	15.60	5,647	4	3	22.13	16.90	7,532
Original	18.90	15.60	5,897	2	3	19.33	17.10	6,616
Breustedt	16.10	14.65	4,717	13	3	18.20	17.12	6,248
Mette	17.70	16.00	5,664	3	3	21.03	17.10	7,224
Schreiber	17.80	14.90	5,304	8	3	19.27	16.23	6,278
Braune	17.60	15.65	5,509	6	3	19.53	16.52	6,449
Heine	......	......	......	......	1	18.70	17.20	6,433
Utah	17.70	15.25	5,399	7	2	19.90	16.78	6,744
Hoerning	17.10	14.80	5,062	10	3	22.17	15.90	7,085
Jaensch	......	......	......	......	1	18.40	16.50	6,072
Dippe	......	......	......	......	1	16.40	17.90	5,871
Kuhn	15.30	16.25	4,973	12	3	16.43	17.42	5,724
Aderstedt	13.00	14.85	3,861	15	......	......	......	......
Idaho	18.00	15.55	5,598	5	......	......	......	......
Behren	15.90	14.45	4,595	14	......	......	......	......
Old Type	16.20	19.66	6,370	1	......	......	......	......
Pioneer	16.10	16.25	5,233	9	......	......	......	......
Wohanka	16.90	14.80	5,002	11	......	......	......	......

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[a] The Original and the Schreiber varieties have the same relative standing for 1907 at Fort Collins, Colo.

TABLE V.—*Standing of sugar-beet varieties tested at the Agricultural Experiment Station, East Lansing, Mich., for each and all years.*[a]

Designation of variety tested.	1904.				1906.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	11.28	15.29	3,449	13	12.29	17.70	4,351	5
Original	15.35	15.67	4,811	2	11.64	17.70	4,121	6
Breustedt	14.54	14.63	4,254	3	14.21	18.40	5,229	1
Mette	12.21	15.20	3,712	9	10.46	16.20	3,389	11
Schreiber	14.40	16.81	4,841	1	13.71	16.70	4,579	4
Braune	12.76	14.58	3,721	8	9.22	17.00	3,135	14
Heine	12.57	16.24	4,083	6	14.16	18.00	5,098	2
Utah	8.94	15.20	2,718	16	13.35	17.50	4,673	3
Hoerning	9.80	14.72	2,885	15	11.03	16.40	3,618	10
Jaensch	10.52	15.10	3,177	14	11.28	16.90	3,813	9
Dippe	11.80	14.72	3,474	12	10.45	16.00	3,344	12
Kuhn	11.30	16.24	3,670	10	11.56	17.80	4,115	7
Knauers	9.24	13.49	2,493	17	9.80	15.80	3,097	15
Agnew	13.29	14.34	3,812	7	...	...	...	...
Nebraska	12.96	15.96	4,137	4	...	...	...	...
Morse	13.09	13.87	3,631	11	...	...	...	...
Aderstedt	14.32	14.44	4,136	5	...	...	...	...
Idaho	...	...	...	...	10.91	18.10	3,949	8
Wohanka	...	...	...	...	8.82	18.60	3,281	13

Designation of variety tested.	1907.				1908.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	16.77	15.10	5,065	5	8.28	20.00	3,312	9
Original	14.19	16.40	4,654	8	7.58	22.80	3,456	7
Breustedt	12.79	16.30	4,170	13	7.41	19.10	2,831	15
Mette	13.15	15.50	4,077	14	8.58	19.10	3,278	10
Schreiber	15 52	17.10	5,308	2	9.39	21.30	4,000	1
Braune	17.36	14.80	5,139	3	8.99	20.10	3,614	5
Heine	14.39	15.80	4,547	10	7.59	20.00	3,036	13
Utah	14.14	15.30	4,327	12	7.58	21.30	3,229	11
Hoerning	14.39	16.00	4,605	9	5.10	21.60	2,203	20
Jaensch	16.97	14.20	4,819	6	6.62	23.10	3,058	12
Dippe	16.91	16.50	5,580	1	6.51	20.50	2,669	18
Kuhn	12.94	17.30	4,477	11	7.65	18.00	2,754	16
Knauers	15.18	15.70	4,767	7	...	...	...	...
Aderstedt	...	...	...	...	9.21	20 30	3,739	4
Idaho	15.35	16.70	5,127	4	9.09	21.00	3,818	2
Behren	...	...	...	...	9 35	20.10	3,759	3
Old Type	...	...	...	...	7 41	20.30	3,008	14
Zuckerreichet	...	...	...	...	8.72	19.40	3,383	8
Pioneer	...	...	...	...	5.75	22.30	2,565	19
Strandes	...	...	...	...	6.89	19.50	2,687	17
Wohanka	11.05	16.50	3,647	15	7.91	22.10	3,496	6

[a] No report was received for the year 1905.

TABLE V.—*Standing of sugar-beet varieties tested at the Agricultural Experiment Station, East Lansing, Mich., for each and all years*—Continued.

Designation of variety tested.	Average for all years.			
	Number of years tested.	Roots.	Sugar.	
		Tons per acre.	*Per cent.*	*Pounds per acre.*
Morrison	4	12.16	17.02	4,044
Original	4	12.19	18.14	4,261
Breustedt	4	12.24	17.11	4,121
Mette	4	11.10	16.50	3,614
Schreiber	4	13.26	17.98	4,682
Braune	4	12.08	16.62	3,902
Heine	4	12.18	17.51	4,191
Utah	4	11.00	17.33	3,737
Hoerning	4	10.08	17.18	3,328
Jaensch	4	11.35	17.33	3,717
Dippe	4	11.42	16.93	3,767
Kuhn	4	10.86	17.34	3,754
Knauers	3	11.41	15.00	3,452

TABLE VI.—*Standing of sugar-beet varieties tested at the Holland, Mich., station (Will Kremers in charge), for each and all years.*

Designation of variety tested.	1904.				1905.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	11.42	14.40	3.289	5	10.80	13.60	2,938	6
Original	8.07	14.70	2,373	17	10.40	13.80	2,870	8
Breustedt	11.05	14.40	3,182	7	10.60	12.10	2,565	15
Mette	12.83	14.10	3.618	2	9.90	13.60	2,693	12
Schreiber	11.80	14.40	3.398	4	9.30	14.50	2,697	11
Braune	11.50	13.70	3.151	8	10.40	13.30	2,766	10
Heine	10.50	14.30	3,003	10	11.50	14.10	3,243	1
Utah					9.90	13.50	2,673	13
Hoerning	13.40	13.90	3.725	1	11.60	13.70	3,178	2
Jaensch	10.52	14.00	2.946	12	9.60	13.70	2,630	14
Dippe	8.69	15.40	2.677	15	10.50	14.90	3,129	3
Kuhn	10.91	15.60	3,404	3	10 10	14.40	2,909	7
Knauers	11.13	13.40	2,983	11	10 80	13.20	2,851	9
Agnew	11.17	13.80	3.083	9	9.50	13.20	2,508	16
Nebraska	9.44	14.20	2,681	14	9.30	13.40	2,492	17
Morse	11.70	13 80	3.229	6	10.90	13.70	2,987	5
Aderstedt	9.93	13.90	2.761	13	10.80	14.30	3,089	4

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	5.78	12.70	1.468	15	8.76	13.90	2,435	2
Original	5.83	13.40	1,562	13	7.78	16.20	2.521	1
Breustedt	8.58	13.10	2.248	1	8.47	14.00	2,372	3
Mette	7.00	12.50	1.750	7	8.32	12.50	2,080	7
Schreiber	6.37	13.50	1.720	9	5.27	15.00	1,581	14
Braune	6.41	12.80	1.641	11	7.69	15.20	2,338	4
Heine	6.02	12.90	1.553	14	6.39	13.70	1,751	12
Utah	7.02	13.20	1.853	4	6.89	15.10	2.081	6
Hoerning	6.90	13.20	1.822	5	7.42	14.80	2,196	5
Jaensch	8.13	13.10	2,130	2	6.53	13.60	1.776	11
Dippe	6.14	13.40	1,646	10	6.58	14.90	1,961	9
Kuhn	6.57	13.20	1.734	8	6.50	14.10	1,833	10
Knauers	8.09	12.30	1,990	3	6.67	11.40	1,521	15
Idaho	6.57	12.40	1.629	12	7.13	14.10	2,011	8
Wohanka	7.15	12.60	1.802	6	5.95	13.80	1,642	13

TABLE VI.—*Standing of sugar-beet varieties tested at the Holland, Mich., station (Will Kremers in charge), for each and all years*—Continued.

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Number of years tested.	Roots.	Sugar.	
	Tons per acre.	*Per cent.*	*Pounds per acre.*			*Tons per acre.*	*Per cent.*	*Pounds per acre.*
Morrison	7.13	17.20	2,453	10	5	8.78	14.36	2,517
Original	7.52	16.80	2,527	9	5	7.92	14.98	2,371
Breustedt	4.80	16.70	1,603	18	5	8.70	14.06	2,394
Mette	4.19	15.40	1,291	19	5	8.45	13.62	2,286
Schreiber	7.79	16.50	2,571	7	5	8.11	14.78	2,393
Braune	6.15	17.40	2,140	14	5	8.43	14.48	2,407
Heine	5.90	17.00	2,006	15	5	8.06	14.40	2,311
Utah	3.52	15.80	1,112	20	4	6.83	14.40	1,930
Hoerning	8.52	16.20	2,760	3	5	9.57	14.36	2,736
Jaensch	7.89	17.10	2,698	4	5	8.53	14.30	2,436
Dippe	7.00	16.50	2,310	12	5	7.78	15.02	2,345
Kuhn	6.96	15.60	2,172	13	5	8.21	14.58	2,410
Knauers	....	....	....	....	4	9.17	12.58	2,336
Aderstedt	4.60	17.50	1,610	17	....	....	....	....
Idaho	7.57	15.30	2,316	11	....	....	....	....
Behren	8.35	16.70	2,789	2	....	....	....	....
Old Type	7.23	17.60	2,545	8	....	....	....	....
Zuckerreichet	5.32	15.80	1,681	16	....	....	....	....
Pioneer	7.79	16.80	2,617	5	....	....	....	....
Strandes	7.75	18.00	2,790	1	....	....	....	....
Wohanka	7.98	16.20	2,586	6	....	....	....	....

TABLE VII.—*Standing of sugar-beet varieties tested at the New York Agricultural Experiment Station, Geneva, N. Y., for each and all years.*

Designation of variety tested.	1904.				1905.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	17.43	15.10	5,264	1	19.29	15.00	5,787	9
Original	10.76	14.60	3,142	4	19.36	16.20	6,273	5
Breustedt	10.38	14.50	3,010	7	20.58	16.00	6,586	1
Mette	9.40	13.90	2,613	14	18.27	14.40	5,262	15
Schreiber	9.68	14.90	2,885	9	18.78	16.30	6,122	6
Braune	11.19	14.00	3,133	5	20.72	15.20	6,299	4
Heine	8.24	15.20	2,505	15	19.60	14.50	5,684	12
Utah	10.01	14.60	2,923	8	17.82	15.60	5,560	14
Hoerning	9.80	13.70	2,685	13	18.21	14.20	5,172	16
Jaensch	9.78	14.20	2,778	12	16.92	15.20	5,144	17
Dippe	11.90	15.00	3,570	2	19.71	16.30	6,425	2
Kuhn	9.36	15.00	2,808	10	17.09	16.30	5,571	13
Knauers	10.54	13.30	2,804	11	21.20	13.60	5,766	10
Agnew	12.30	13.60	3,346	3	20.48	14.80	6,062	7
Nebraska	6.00	13.90	1,668	17	18.91	15.90	6,013	8
Morse	8.80	12.40	2,182	16	19.62	14.60	5,729	11
Aderstedt	10.84	14.40	3,122	6	20.89	15.20	6,351	3

TABLE VII.—*Standing of sugar-beet varieties tested at the New York Agricultural Experiment Station, Geneva, N. Y., for each and all years*—Continued.

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	14.73	14.92	4,395	4	18.88	17.80	6,721	1
Original	14.65	16.05	4,703	1	14.30	17.73	5,071	7
Breustedt	12.33	13.87	3,420	12	17.60	16.29	5,734	2
Mette	12.37	14.44	3,572	11	13.44	17.73	4,766	10
Schreiber	15.39	14.72	4,531	3	13.61	16.83	4,581	13
Braune	14.52	14.25	4,138	6	13.04	17.91	4,671	12
Heine	14.58	14.44	4,211	5	12.72	17.55	4,465	14
Utah	13.88	14.82	4,114	7	12.02	18.00	4,327	15
Hoerning	13.18	14.35	3,783	9	13.58	17.82	4,840	8
Jaensch	10.99	14.87	3,268	13	17.24	15.93	5,493	4
Dippe	15.92	14.53	4,626	2	13.02	18.00	4,687	11
Kuhn	11.70	13.77	3,222	14	14.84	17.19	5,102	6
Knauers	11.77	12.06	2,839	15	18.50	14.67	5,428	5
Idaho	13.92	14.44	4,020	8	15.92	17.28	5,502	3
Wohanka	12.83	14.72	3,777	10	15.20	15.84	4,815	9

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Number of years tested.	Roots.	Sugar.	
	Tons per acre.	*Per cent.*	*Pounds per acre.*			*Tons per acre.*	*Per cent.*	*Pounds per acre.*
Morrison	19.50	14.00	5,460	2	5	17.97	15.36	5,525
Original	16.76	13.80	4,626	14	5	15.17	15.68	4,763
Breustedt	18.85	12.90	4,863	10	5	15.95	14.71	4,723
Mette	18.53	14.20	5,263	4	5	14.40	14.93	4,295
Schreiber	17.85	13.30	4,748	11	5	15.06	15.21	4,573
Braune	17.33	13.50	4,679	13	5	15.36	14.97	4,584
Heine	14.85	15.80	4,693	12	5	14.00	15.50	4,312
Utah	18.75	14.70	5,513	1	5	14.50	15.54	4,487
Hoerning	16.83	12.30	4,140	20	5	14.32	14.47	4,124
Jaensch	18.85	13.30	5,014	8	5	14.76	14.70	4,339
Dippe	15.60	13.70	4,274	19	5	15.23	15.51	4,716
Kuhn	18.90	13.40	5,065	6	5	14.38	15.13	4,354
Knauers	....	....	....	....	4	15.50	13.41	4,209
Aderstedt	16.65	15.10	5,028	7	....	....	....	....
Idaho	18.15	13.50	4,901	9	....	....	....	....
Behren	19.13	13.80	5,280	3	....	....	....	....
Old Type	16.28	13.90	4,526	16	....	....	....	....
Zuckerreichet	19.23	13.40	5,154	5	....	....	....	....
Pioneer	16.67	13.30	4,434	18	....	....	....	....
Strandes	16.31	14.10	4,599	15	....	....	....	....
Wohanka	18.83	12.00	4,519	17	....	....	....	....

TABLE VIII.—*Standing of sugar-beet varieties tested at Eastern Oregon Agricultural Experiment Station, Union, Oreg., for each and all years.*

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	23.46	17.57	8,244	1	20.90	18.22	7,616	1
Original	20.94	16.43	6,881	7	17.78	19.04	6,771	4
Breustedt	18.58	16.81	6,247	13	19.32	16.65	6,434	8
Mette	21.51	16.24	6,986	5	16.66	17.20	5,731	14
Schreiber	18.13	17.19	6,233	14	18.38	17.66	6,492	7
Braune	19.58	17.02	6,665	8	19.27	18.67	7,195	3
Heine	19.49	16.72	6,517	9	18.01	18.40	6,628	6
Utah	23.44	16.24	7,613	3	17.97	16.93	6,085	10
Hoerning	23.14	15.89	7,354	4	16.82	17.66	5,941	12
Jaensch	22.02	17.67	7,782	2	19.25	17.48	6,730	5
Dippe	18.01	17.48	6,296	12	20.25	18.22	7,379	2
Kuhn	19.52	16.34	6,379	11	16.21	18.12	5,875	13
Knauers	18.10	15.58	5,640	15	......	......	......	......
Idaho	20.36	16.91	6,886	6	16.66	18.40	6,131	9
Wohanka	20.77	15.48	6,430	10	17.70	17.11	6,057	11

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Number of years tested.	Roots.	Sugar.	
	Tons per acre.	*Per cent.*	*Pounds per acre.*			*Tons per acre.*	*Per cent.*	*Pounds per acre.*
Morrison	9.75	15.81	3,083	13	3	18.04	17.20	6,314
Original	10.92	19.90	4,346	1	3	16.55	18.46	5,999
Breustedt	10.00	19.16	3,832	[a] 6	3	15.97	17.54	5,504
Mette	11.62	17.67	4,107	3	3	16.60	17.04	5,608
Schreiber	10.80	16.74	3,616	8	3	15.77	17.20	5,447
Braune	12.00	13.76	3,302	10	3	16.95	16.48	5,721
Heine	10.72	16.00	3,430	9	3	16.07	17.04	5,525
Utah	8.75	17.86	3,126	11	3	16.72	17.01	5,608
Hoerning	9.42	15.62	2,943	15	3	16.46	16.39	5,413
Jaensch	9.40	14.32	2,692	17	3	16.89	16.49	5,735
Dippe	9.80	14.88	2,916	16	3	16.02	16.86	5,530
Kuhn	6.47	20.65	2,672	18	3	14.07	18.37	4,975
Knauers	......	......	......	......	1	18.10	15.58	5,640
Aderstedt	11.75	17.11	4,021	4	......	......	......	......
Idaho	10.30	18.60	3,832	[a] 6	......	......	......	......
Behren	8.92	16.74	2,986	14	......	......	......	......
Old type	9.32	16.74	3,120	12	......	......	......	......
Zuckerreichet	14.15	15.07	4,265	2	......	......	......	......
Strandes	9.17	14.51	2,661	19	......	......	......	......
Wohanka	10.12	19.72	3,991	5	......	......	......	......

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[a] The Breustedt and the Idaho varieties have the same relative standing for 1908 at Union, Oreg.

TABLE IX.—*Standing of sugar-beet varieties tested at the Agricultural Experiment Station, Logan, Utah, for each and all years.*[a]

Designation of variety tested.	1904.				1906.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	18.39	16.93	6,227	4	24.00	15.07	7,234	13
Original	15.20	18.53	5,633	10	25.20	16.37	8,250	4
Breustedt	15.16	15.62	4,736	14	27.40	15.25	8,357	2
Mette	17.40	14.91	5,189	12	28.00	15.16	8,490	1
Schreiber	16.91	17.02	5,756	9	25.30	16.18	8,187	5
Braune	18.33	16.68	6,115	8	28.00	14.57	8,159	6
Heine	17.78	17.22	6,123	7	26.20	14.97	7,844	8
Utah	17.69	18.22	6,446	3	25.40	14.42	7,325	[b] 11
Hoerning	15.96	15.36	4,903	13	28.00	13.67	7,655	9
Jaensch	12.78	15.95	4,077	17	25.00	16.09	8,045	7
Dippe	17.30	17.90	6,193	6	25.40	14.42	7,325	[b] 11
Kuhn	16.23	16.77	5,444	11	23.20	15.16	7,034	14
Knauers	14.61	16.08	4,699	15				
Agnew	16.96	18.30	6,207	5				
Nebraska	20.78	18.45	7,668	1				
Morse	19.89	16.70	6,643	2				
Aderstedt	13.09	15.74	4,121	16				
Idaho					26.00	16.00	8,320	3
Wohanka					25.70	14.60	7,504	10

Designation of variety tested.	1907.				1908.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	23.93	16.34	7.820	9	25.98	13.99	7,269	15
Original	26.09	16.49	8,604	5	24.10	17.91	8,633	1
Breustedt	27.14	18.11	9,830	1	25.22	15.89	8,015	7
Mette	25.00	18.00	9.000	3	25.36	14.12	7,162	17
Schreiber					22.45	15.53	6,973	19
Braune	24.21	17.64	8,541	6	25.71	14.49	7,451	12
Heine	25.82	15.87	8,195	7	24.42	17.60	8,596	3
Utah	25.33	17.86	9,048	2	22.73	15.50	7,046	18
Hoerning	24.18	16.20	7.834	8	24.61	15.97	7,860	9
Jaensch	24.04	18.00	8,654	4	22.79	15.76	7,183	16
Dippe	21.27	14.42	6,134	13	26.21	15.78	8,272	4
Kuhn	21.33	18.14	7,739	10	25.00	16.34	8,170	5
Aderstedt					24.64	15.94	7,855	10
Idaho	24.45	14.62	7.149	11	24.94	14.63	7,297	14
Behren					27.21	15.81	8,604	2
Old Type					26.06	14.91	7,771	11
Zuckerreichet					25.85	15.34	7,931	8
Pioneer					22.60	14.96	6,962	20
Strandes					25.87	14.38	7,440	13
Wohanka	21.44	15.73	6.745	12	24.93	16.33	8,142	6

Designation of variety tested.	Average for all years.			
	Number of years tested.	Roots.	Sugar.	
		Tons per acre.	*Per cent.*	*Pounds per acre.*
Morrison	4	23.08	15.58	7,138
Original	4	22.65	17.33	7,780
Breustedt	4	23.73	16.22	7,735
Mette	4	23.94	15.55	7,460
Schreiber	3	21.55	16.24	6,972
Braune	4	24.06	15.85	7,567
Heine	4	23.56	16.42	7,690
Utah	4	22.79	16.50	7,466
Hoerning	4	23.19	15.30	7,063
Jaensch	4	21.15	16.45	6,990
Dippe	4	22.55	15.63	6,981
Kuhn	4	21.44	16.60	7,097
Knauers	1	14.61	16.08	4,699

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[a] The results for 1905 are not comparable on account of the partial destruction of several varieties by insects.

[b] The Utah and the Dippe varieties have the same relative standing for 1906 at Logan, Utah.

TABLE X.—*Standing of sugar-beet varieties tested at Fairfield, Wash. (Joseph F. Reed, in charge), for each and all years.*

Designation of variety tested.	1904.				1905.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	5.46	20.50	2,239	[a] 9	5.60	15.48	1,734	4
Original	5.66	21.20	2,400	1	4.81	15.03	1,446	15
Breustedt	5.42	21.50	2,331	3	5.79	14.91	1,727	5
Mette	5.55	20.40	2,264	7	6.00	15.39	1,847	1
Schreiber	5.23	21.50	2,249	8	4.86	17.38	1,689	6
Braune	5.55	19.70	2,187	[b] 13	5.36	13.59	1,457	14
Heine	5.23	21.40	2,238	11	4.97	15.96	1,586	11
Utah	5.10	20.60	2,101	16	5.79	15.05	1,743	3
Hoerning	5.64	20.20	2,279	6	5.84	13.87	1,620	9
Jaensch	5.78	20.00	2,312	5	5.84	15.20	1,775	2
Dippe	5.28	21.10	2,228	12	5.03	15.00	1,509	12
Kuhn	5.46	20.50	2,239	[a] 9	4.64	14.53	1,348	17
Knauers	5.01	19.00	1,904	17	5.74	12.54	1,440	16
Agnew	5.55	19.70	2,187	[b] 13	5.12	14.25	1,459	13
Nebraska	5.55	21.40	2,375	2	5.56	14.67	1,631	8
Morse	5.75	18.90	2,174	15	5.55	15.20	1,687	7
Aderstedt	5.97	19.50	2,328	4	5.56	14.48	1,610	10

Designation of variety tested.	1906.				1907.			
	Roots.	Sugar.		Standing for year.	Roots.	Sugar.		Standing for year.
	Tons per acre.	*Per cent.*	*Pounds per acre.*		*Tons per acre.*	*Per cent.*	*Pounds per acre.*	
Morrison	6.03	21.37	2,577	[c] 4	6.94	20.71	2,875	2
Original	6.73	21.37	2,876	1	7.00	20.71	2,899	1
Breustedt	6.40	18.43	2,359	11	6.67	20.33	2,712	8
Mette	6.57	20.42	2,683	2	6.43	20.33	2,614	13
Schreiber	6.03	21.37	2,577	[c] 4	6.74	20.14	2,715	7
Braune	6.02	19.38	2,333	12	6.50	20.14	2,618	11
Heine	5.73	21.47	2,460	[d] 7	6.54	20.14	2,634	10
Utah	5.92	20.14	2,385	10	6.62	19.76	2,616	12
Hoerning	6.18	20.14	2,489	6	6.75	20.33	2,745	6
Jaensch	5.33	20.42	2,177	14	6.72	18.53	2,490	14
Dippe	5.73	21.47	2,460	[d] 7	6.85	20.90	2,863	3
Kuhn	6.29	20.99	2,641	3	6.50	20.81	2,705	9
Knauers	5.55	19.38	2,151	15	6.23	19.67	2,451	15
Idaho	5.77	21.00	2,423	9	6.60	21.66	2,859	4
Wohanka	5.94	18.52	2,200	13	6.73	20.71	2,788	5

Designation of variety tested.	1908.				Average for all years.			
	Roots.	Sugar.		Standing for year.	Number of years tested.	Roots.	Sugar.	
	Tons per acre.	*Per cent.*	*Pounds per acre.*			*Tons per acre.*	*Per cent.*	*Pounds per acre.*
Morrison	6.27	21.00	2,633	1	5	6.06	19.81	2,412
Original	5.40	21.00	2,268	6	5	5.92	19.86	2,378
Breustedt	5.38	19.76	2,126	10	5	5.93	18.99	2,251
Mette	4.94	19.57	1,934	15	5	5.90	19.22	2,268
Schreiber	5.68	20.33	2,309	5	5	5.71	20.14	2,308
Braune	3.07	20.14	1,237	19	5	5.30	18.59	1,966
Heine	3.09	20.33	1,256	18	5	5.11	19.86	2,035
Utah	5.99	20.05	2,402	2	5	5.88	19.12	2,249
Hoerning	5.18	20.33	2,106	11	5	5.92	18.98	2,248
Jaensch	5.55	20.24	2,247	7	5	5.84	18.88	2,200
Dippe	5.03	20.43	2,055	12	5	5.58	19.78	2,223
Kuhn	5.40	20.61	2,226	8	5	5.66	19.49	2,232
Knauers	......	......	......	......	4	5.63	17.65	1,987
Aderstedt	2.74	20.14	1,104	20	......	......	......	......
Idaho	3.96	20.81	1,648	17	......	......	......	......
Behren	5.53	20.90	2,312	4	......	......	......	......
Old Type	5.66	20.90	2,366	3	......	......	......	......
Zuckerreichet	4.94	19.05	1,882	16	......	......	......	......
Pioneer	4.74	20.81	1,973	14	......	......	......	......
Strandes	5.07	19.76	2,004	13	......	......	......	......
Wohanka	5.46	20.05	2,189	9	......	......	......	......

[a] The Morrison and the Kuhn varieties have the same relative standing for 1904 at Fairfield, Wash.

[b] The Braune and the Agnew varieties have the same relative standing for 1904 at Fairfield, Wash.

[c] The Morrison and the Schreiber varieties have the same relative standing for 1906 at Fairfield, Wash.

[d] The Heine and the Dippe varieties have the same relative standing for 1906 at Fairfield, Wash.

TABLE XI.—*Relative standing, by stations and by years, of sugar-beet varieties tested, for all years.*

Designation of variety tested.	Arranged by stations.							
	Colorado (Fort Collins).	Michigan (East Lansing).	Michigan (Holland).	New York (Geneva).	Oregon (Union).	Utah (Logan).	Washington (Fairfield).	All stations.
Morrison	1	5	2	1	1	2	1	1
Original	5	2	8	2	2	1	2	2
Breustedt	9	4	6	3	10	3	5	3
Mette	2	12	12	11	[a]6	7	4	4
Schreiber	8	1	7	6	11	12	3	5
Braune	6	6	5	5	4	5	13	6
Heine	7	3	11	10	9	4	12	7
Utah	4	9	13	7	[a]6	6	6	8
Hoerning	3	10	1	13	12	9	7	9
Jaensch	10	11	3	9	3	10	10	10
Dippe	11	7	9	4	8	11	9	11
Kuhn	12	8	4	8	13	8	8	12
Knauers		13	10	12	5	13	11	13

Designation of variety tested.	Arranged by years.					
	1904.	1905.	1906.	1907.	1908.	All years.
Morrison	1	7	1	1	2	1
Original	3	3	2	4	1	2
Breustedt	9	2	5	2	6	3
Mette	10	12	4	6	4	6
Schreiber	2	6	6	12	3	5
Braune	4	4	9	3	7	4
Heine	6	5	7	11	9	9
Utah	7	9	10	5	8	7
Hoerning	11	10	3	7	10	8
Jaensch	12	13	8	8	11	12
Dippe	5	1	11	10	12	10
Kuhn	8	11	12	9	5	11
Knauers	13	8	13	13		13

TABLE XII.—*Relative standing, by stations, of sugar-beet varieties tested, for each year.*

Designation of variety tested.	Colorado (Fort Collins).			Michigan (East Lansing).				Michigan (Holland).				
	1906.	1907.	1908.	1904.	1906.	1907.	1908.	1904.	1905.	1906.	1907.	1908.
Morrison	1	4	4	13	5	5	9	5	6	15	2	10
Original	6	[b]7	2	2	6	8	7	17	8	13	1	9
Breustedt	5	9	13	3	1	13	15	7	15	1	3	18
Mette	3	2	3	9	11	14	10	2	12	7	7	19
Schreiber	10	[b]7	8	1	4	2	1	4	11	9	14	7
Braune	7	6	6	8	14	3	5	8	10	11	4	14
Heine	8			6	2	10	13	10	1	14	12	15
Utah		1	7	16	3	12	11		13	4	6	20
Hoerning	2	3	10	15	10	9	20	1	2	5	5	3
Jaensch	11			14	9	6	12	12	14	2	11	4
Dippe	12			12	12	1	18	15	3	10	9	12
Kuhn	9	11	12	10	7	11	16	3	7	8	10	13
Knauers				17	15	7		11	9	3	15	
Agnew				7				9	16			
Nebraska				4				14	17			
Morse				11				6	5			
Aderstedt			15	5			4	13	4			17
Idaho		5	5		8	4	2			12	8	11
Behren			14				3					2
Old Type			1				14					8
Zuckerreichet							8					16
Pioneer			9				19					5
Strandes							17					1
Wohanka	4	10	11		13	15	6			6	13	6

[a] The Mette and the Utah varieties have the same relative standing at Union, Oreg.

[b] The Original and the Schreiber varieties have the same relative standing for 1907 at Fort Collins, Colo.

TABLE XII.—*Relative standing, by stations, of sugar-beet varieties tested for each year*—Continued.

Designation of variety tested.	New York (Geneva).					Oregon (Union).		
	1904.	1905.	1906.	1907.	1908.	1906.	1907.	1908.
Morrison	1	9	4	1	2	1	1	13
Original	4	5	1	7	14	7	4	1
Breustedt	7	1	12	2	10	13	8	[a]6
Mette	14	15	11	10	4	5	14	3
Schreiber	9	6	3	13	11	14	7	8
Braune	5	4	6	12	13	8	3	10
Heine	15	12	5	14	12	9	6	9
Utah	8	14	7	15	1	3	10	11
Hoerning	13	16	9	8	20	4	12	15
Jaensch	12	17	13	4	8	2	5	17
Dippe	2	2	2	11	19	12	2	16
Kuhn	10	13	14	6	6	11	13	18
Knauers	11	10	15	5	....	15	....	....
Agnew	3	7	....	....	....	....	....	....
Nebraska	17	8	....	....	....	....	....	....
Morse	16	11	....	....	....	....	....	....
Aderstedt	6	3	....	....	7	....	....	4
Idaho	....	....	8	3	9	6	9	[a]6
Behren	....	....	....	....	3	....	....	14
Old Type	....	....	....	....	16	....	....	12
Zuckerreichet	....	....	....	....	5	....	....	2
Pioneer	....	....	....	....	18	....	....	....
Strandes	....	....	....	....	15	....	....	19
Wohanka	....	....	10	9	17	10	11	5

Designation of variety tested.	Utah (Logan).				Washington (Fairfield).				
	1904.	1906.	1907.	1908.	1904.	1905.	1906.	1907.	1908.
Morrison	4	13	9	15	[b]9	4	[c]4	2	1
Original	10	4	5	1	1	15	1	1	6
Breustedt	14	2	1	7	3	5	11	8	10
Mette	12	1	3	17	7	1	2	13	15
Schreiber	9	5	......	19	8	6	[c]4	7	5
Braune	8	6	6	12	[d]13	14	12	11	19
Heine	7	8	7	3	11	11	[e]7	10	18
Utah	3	[f]11	2	18	16	3	10	12	2
Hoerning	13	9	8	9	6	9	6	6	11
Jaensch	17	7	4	16	5	2	14	14	7
Dippe	6	[f]11	13	4	12	12	[e]7	3	12
Kuhn	11	14	10	5	[b]9	17	3	9	8
Knauers	15	......	......	......	17	16	15	15	......
Agnew	5	......	......	......	[d]13	13	......	......	......
Nebraska	1	......	......	......	2	8	......	......	......
Morse	2	......	......	......	15	7	......	......	......
Aderstedt	16	......	......	10	4	10	......	......	20
Idaho	......	3	11	14	......	......	9	4	17
Behren	......	......	......	2	......	......	......	......	4
Old Type	......	......	......	11	......	......	......	......	3
Zuckerreichet	......	......	......	8	......	......	......	......	16
Pioneer	......	......	......	20	......	......	......	......	14
Strandes	......	......	......	13	......	......	......	......	13
Wohanka	......	10	12	6	......	......	13	5	9

[a] The Breustedt and the Idaho varieties have the same relative standing for 1908 at Union, Oreg.
[b] The Morrison and the Kuhn varieties have the same relative standing for 1904 at Fairfield, Wash.
[c] The Morrison and the Schreiber varieties have the same relative standing for 1906 at Fairfield, Wash.
[d] The Braune and the Agnew varieties have the same relative standing for 1904 at Fairfield, Wash.
[e] The Heine and the Dippe varieties have the same relative standing for 1906 at Fairfield, Wash.
[f] The Utah and the Dippe varieties have the same relative standing for 1906 at Logan, Utah.